



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

**75 Hawthorne Street
San Francisco, CA 94105-3901**

JUN 02 2010

Attn: Ron Wenker, State Director
Bureau of Land Management
BLM Nevada State Office
1340 Financial Blvd.
Reno, NV 89502

Subject: Draft Environmental Impact Statement for the Silver State Solar Energy Project, Clark County, Nevada [CEQ# 20100129]

Dear Mr. Wenker:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Silver State Solar Energy Project (Project). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

I am directing this comment letter to you because of our concerns over the Project's potential environmental impacts, insufficient evaluation of potentially environmentally preferable alternatives, and implications for other renewable energy projects that have been proposed on Bureau of Land Management (BLM) lands throughout our Region. In light of these concerns, and our recent adverse rating of BLM's Amargosa Solar Millennium Project in Nevada, (comments submitted on May 17, 2010) and Imperial Valley Solar Project in California (comments submitted May 27, 2010), I would like to meet with you and BLM's Acting California State Director Jim Abbott in the next 30 days to discuss these issues further. I believe it is important for us to coordinate now to avoid unnecessary delays in the NEPA process as we all work toward the nation's renewable energy goals.

EPA supports increasing the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources such as solar power can help the nation meet its energy requirements while minimizing the generation of greenhouse gases. While renewable energy facilities offer many environmental benefits, appropriate siting and design is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.

BLM has identified thirty-four proposed renewable energy projects as "fast track" projects that are expected to complete the environmental review process and be ready to break ground by December 2010 in order to be eligible for funding under the American Recovery and Reinvestment Act. Twenty-eight of these projects are located in our Region; 13 of them are located in Nevada. We are aware that many more projects that have not been designated "fast-track" are also being considered by BLM. Many, if not all, of these projects, fast track or

otherwise, are proposed for previously undeveloped sites on public lands. In making its decisions regarding whether or not to grant rights-of-way for such projects, we recommend that BLM consider a full range of reasonable alternatives to minimize the adverse environmental impacts. Such alternatives could include alternative technologies or altered project footprints at the proposed location, as well as alternate sites, such as inactive mining or other disturbed sites that may offer advantages in terms of availability of infrastructure and less vulnerable habitats. Given the large number of renewable energy project applications currently under consideration, particularly in the Desert Southwest, we encourage BLM to apply its land management authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

On July 30, 2009, EPA provided extensive scoping comments for the Silver State Solar Energy Project, which included detailed recommendations regarding purpose and need, range of alternatives, water resources, and other resource areas of concern. On June 1, 2010, we requested and received an informal one-week extension of the comment period for the DEIS. We appreciate your willingness to provide us with additional time to complete our review.

Based on our review of the DEIS, we have rated the document as *Environmental Objections – Insufficient Information* (EO-2). Please see the enclosed “Summary of EPA Rating Definitions.” An “EO” signifies that EPA’s review of the DEIS has identified potential significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may involve substantial changes to the project. A “2” rating signifies that the DEIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment.

We are particularly concerned about the potential impact of the proposed project to waters of the United States, and this is the basis for our “EO” rating. We understand that the jurisdictional delineation of waters of the United States has not been finalized and the full extent of impacts has not been determined. Based on the preliminary analysis, however, the impacts appear to be of a magnitude that is a significant environmental concern, especially within an arid ecosystem. In addition, some portions of the Project would be located in areas of high flood risk, which raises environmental as well as engineering and financial sustainability concerns due to increased erosion, migration of channels, local scour, and potential destabilization and damage to valuable facilities and equipment. We are also concerned that many of the biological field surveys either have not been completed, or were not completed in time to present results in the DEIS, nor is there adequate information about the availability of groundwater in the Ivanpah Valley. Finally, we are concerned about the indirect and cumulative effects associated with the influx of other large-scale solar energy projects proposed in the Ivanpah Valley.

EPA strongly encourages BLM to address comments provided on the subject DEIS in the Final Environmental Impact Statement (FEIS). The FEIS should also demonstrate that the proposed Project is the *Least Environmentally Damaging Practicable Alternative* (LEDPA), and identify measures that could mitigate the impacts. It should include a robust discussion of all avoidance and mitigation measures proposed for the Project and include an outline of the requirements of a compensatory mitigation plan.

We believe it is imperative that BLM, resource agencies and project applicants coordinate early with other agencies and stakeholders on site selection and project design in order to facilitate timely environmental reviews. EPA appreciates the opportunity to provide input on this Project and the multitude of DEISs under preparation for renewable energy projects in our Region. We are available to further discuss all recommendations provided. Please send one hard copy of the FEIS and two CD ROM copies to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at 415-972-3843, or contact Ann McPherson, the lead reviewer for this project. Ann can be reached at 415-972-3545 or mcpherson.ann@epa.gov.

Sincerely,



Enrique Manzanilla, Director
Communities and Ecosystem Division

Enclosures: Summary of EPA Rating Definitions
Detailed Comments

Cc: Gregory Helseth, Bureau of Land Management
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U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE SILVER STATE SOLAR ENERGY PROJECT, CLARK COUNTY, NEVADA, JUNE 2, 2010

Project Description

NextLight Renewable Power, LLC, has submitted an application for a right-of-way (ROW) for the construction, operation, maintenance, and termination of a solar energy generation site. The proposed project would generate approximately 400 megawatts (MW) of electricity using photovoltaic (PV) panels. The project is expected to operate for approximately 50 years and would be located on approximately 7,840 acres of public lands east of Primm, Nevada. The proposed project would be built in three phases: Phase 1 – 60 MW; Phase 2 – 140 MW; Phase 3 – 200 MW. The proposed project would include solar fields, tracker systems or fixed panels, electrical power collection system, right-of-way appurtenances, two substations (North and South substation), switchyard facilities, transformers, transmission lines, access roads, flood and drainage controls, and a fire break. The proposed project has been designed to deliver power to both the Nevada market, via Nevada Energy's Walter M. Higgins Power Generating Station, and the California market, via Southern California Edison's proposed 220 kilovolt (kV) upgraded Eldorado-Ivanpah Transmission project (pg. 2-21).

The Silver State Solar Energy project was initially described as Silver State South Solar Project (NVN-085077) and Silver State North Solar Project (NVN-085801). According to the Draft Environmental Impact Statement (DEIS), the Bureau of Land Management (BLM) will approve or deny the ROW application for NVN-085077. No further reference is made to Silver State North Solar Project (NVN-085801).

Recommendation:

Clarify whether Silver State North and Silver State South have been merged into one project with one ROW application. Define the boundaries for ROW applications NVN-085077 and NVN-085801.

Compliance with Clean Water Act Section 404

In our scoping comments (July 30, 2009), the U.S. Environmental Protection Agency (EPA) noted that the project applicant should coordinate with the U.S. Army Corps of Engineers (Corps) to determine if the proposed project requires a Section 404 permit under the Clean Water Act (CWA). The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of waters of the United States (waters of the U.S., WUS, or jurisdictional waters). These goals are achieved, in part, by prohibiting discharges of dredged or fill material that would result in avoidable or significant adverse impacts on the aquatic environment. Pursuant to Section 404 of the CWA, discharge of dredged or fill material to WUS requires a permit issued by the Corps. If a permit is required, EPA will review the project for compliance with the *Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials* (40 CFR 230) (Guidelines), promulgated pursuant to Section 404(b)(1) of the CWA. The burden to demonstrate compliance with the Guidelines rests with the permit applicant. The Guidelines contain four main requirements that must be met to obtain a Section 404 permit:

- a) Section 230.10(a) prohibits a discharge if there is a less environmentally damaging practicable alternative to the proposed project.
- b) Section 230.10(b) prohibits discharges that will result in a violation of water quality standards or toxic effluent standards, jeopardize a threatened or endangered species, or violate requirements imposed to protect a marine sanctuary.
- c) Section 230.10(c) prohibits discharges that will cause or contribute to significant degradation of waters. Significant degradation may include individual or cumulative impacts to human health and welfare; fish and wildlife; ecosystem diversity, productivity and stability; and recreational, aesthetic or economic values.
- d) Section 230.10(d) prohibits discharges unless all appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Recommendation:

Discuss and demonstrate compliance with the Guidelines in the Final Environmental Impact Statement (FEIS).

Geographic Extent of Waters of the United States

EPA is concerned about the potential adverse impact to aquatic resources that would result from the project, as proposed. The DEIS states that a delineation of waters of the U.S. was conducted by CH2MHill and the Corps for the project area in August 2009 (pg. 3-26). Based on the delineation, the project could impact potentially jurisdictional waters on the southern portion of the project area. According to the DEIS, the Corps also indicated that it would likely assert jurisdiction over all drainages greater than or equal to 3 feet in width that intersect the Nevada-California state line (pg. 3-26). The field survey identified numerous interconnected ephemeral washes ranging in size from small wash features (3 to 10 feet wide) to medium, broad drainages (10 to 20 feet wide) (pg. 3-22). It should be noted that the lateral extent of federal jurisdiction on drainages is determined by the presence of an ordinary high water mark (OHW), not by an arbitrary channel width. Jurisdictional channels that exhibit an OHW mark could be less than three feet in width. A complete assessment of the potential effects to jurisdictional waters, riparian areas, and wetlands, caused directly or indirectly by the proposed project cannot be completed until the Jurisdictional Determination is issued by the Corps.

EPA has received a copy of the preliminary jurisdictional determination¹ for 2,900 acres designated as Silver State South PV site (April 8, 2010). Based on this analysis, 37.7 acres of wetlands or other water bodies may be jurisdictional waters of the U.S. The Corps notes that drainages in the Silver State North PV site will be addressed in a separate approved Jurisdictional Determination and will require coordination with the EPA. At present, we are unable to determine the full extent of project impacts to jurisdictional waters.

¹*Preliminary Jurisdictional Determination of Wetlands and Waters of the U.S. for Silver State South PV Site, Clark County, Nevada, April 8, 2010.*

Recommendation:

The FEIS should include a final determination of the extent of waters of the United States at the project site.

Analysis of Alternatives – 40 CFR 230.10(a)

In order to comply with the Guidelines, the applicant must comprehensively evaluate a range of alternatives to ensure that the “preferred” alternative is the *Least Environmentally Damaging Practicable Alternative* (LEDPA). Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters resulting from a set of on- and off-site project alternatives. Project alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, so long as it does not have other significant adverse environmental consequences. Only when this analysis has been performed can the applicant and the permitting authority be assured that the selected alternative is the LEDPA (40 CFR 230.10(a)).

As currently proposed, we cannot determine whether or not the preferred alternative represents the LEDPA. According to the DEIS, the applicant evaluated two types of technology: concentrating solar power (CSP) technology and PV technology (pg. 2-6). CSP technology was rejected because it would require more acreage and additional water for cooling components. PV technology was selected for its reduced water consumption, reduced grading requirements, reduced impact on off-highway vehicle (OHV) use, and reduced visual impact. While these are important considerations, it is not possible to determine the LEDPA in the absence of an approved determination of the geographic extent of waters of the U.S. on the project site.

The DEIS contains a cursory evaluation of one off-site alternative (pg. 2-6), and includes two on-site alternatives with different drainage configurations. Both of the on-site alternatives appear to avoid jurisdictional waters to some degree by preserving some natural drainages; however, the extent to which jurisdictional waters are avoided is not evaluated within the DEIS. Nor does the DEIS provide detailed information on the potential for reconfiguration or redesign of the project layout, roads, and drainage channels that could result in avoidance of jurisdictional waters. The DEIS does not discuss the feasibility of constructing a smaller-sized project that would have fewer environmental impacts. In contrast, it states that no comments were received during scoping suggesting that the Proposed Project should have a smaller footprint or should be reduced in capacity (pg. 2-6). Although this may be true, it does not preclude the applicant nor BLM from examining the issue further. Based on the information in the DEIS, it appears that a smaller plant alternative may be practicable and less environmentally damaging to jurisdictional waters when compared to the proposed project alternatives.

Recommendation:

EPA recommends that BLM include analyses of additional on- and off-site alternatives in the FEIS and identify the LEDPA. The alternatives should encompass a reasonable range of Project sizes and configurations that could be less environmentally damaging, while meeting the purpose and need of the Project. Sufficient detail should be provided to allow

for meaningful comparisons.

Minimize Potential Adverse Impacts and Mitigation – 40 CFR 230.10(d)

Pursuant to the Guidelines, mitigation of project impacts begins with the avoidance and minimization of direct, indirect, and cumulative impacts to the aquatic ecosystem, followed by compensatory measures if a loss of aquatic functions and/or acreage is unavoidable. Compensatory mitigation is, therefore, intended only for unavoidable impacts to waters after the LEDPA has been determined. For this reason, it would be premature to examine in detail any mitigation proposal before compliance with 40 CFR 230.10(a) is established.

The DEIS has not clearly demonstrated that all practicable measures to minimize unavoidable impacts to potential waters of the United States have been incorporated into the proposed project design. The Proposed Action (BLM's Preferred Alternative) would disturb a total area of 2,967 acres (pg. 2-2). Drainage controls for the Proposed Action would consist of a series of five small and wide earthen drainage control berms that would contain surface runoff flows to existing primary drainages (stormwater flow corridors) across the site. The drainage structures would result in a temporary disturbance of 11 acres and a permanent disturbance of 17.7 acres. The Modified Site Layout Alternative would disturb a total area of 4,818 acres (pg. 2-2). Drainage controls for this alternative would consist of several upstream drainage control structures (level spreader detention basins, diversion berms, channels, and debris basins) extending in a linear pattern along the entire eastern border of the Proposed Project site. The drainage structures would result in a temporary disturbance of 1,150 acres and a permanent disturbance of 250 acres. The DEIS does not specify the extent of impacts on jurisdictional waters with either alternative.

We believe there may be project designs that avoid and minimize direct, indirect, and cumulative impacts to potential jurisdictional washes by reducing the fill footprint, utilizing existing drainage channels, and if necessary, constructing drainage channels with natural features. The DEIS provides no assessment of the cumulative impacts on waters of the United States of the proposed project and other proposed projects in the area. Finally, the DEIS includes no compensatory mitigation measures for potential impacts to jurisdictional waters. In short, the project appears not to comply with EPA's Guidelines, nor with the Corps' and EPA's regulations governing mitigation under Section 404 of the CWA.²

Recommendations:

Discuss the steps taken to avoid and minimize impacts to waters of the United States. To the extent any aquatic features that could be affected by the project are determined not to constitute waters of the U.S., EPA recommends that the FEIS characterize the functions of such features and discuss potential mitigation.

Include in the FEIS a mitigation plan for unavoidable impacts to waters of the United States, as required by Corps and EPA regulations.

² Compensatory Mitigation for the Loss of Aquatic Resources, Final Rule, 33CFR 325 and 332, April 10, 2008.

Ephemeral Washes, Flood Zones, and Drainage

EPA is concerned about the potential impact to the ephemeral water segments located within the project area. The DEIS provides basic hydrologic information on the location of the proposed project, including a detailed map of the water resources in the project area (pg. 3-23), but does not illustrate the location of Roach Dry Lake or Ivanpah Dry Lake, nor does it provide detailed information of drainages extending into California.

Recommendation:

Include a detailed map of the water resources and hydrographic basins surrounding the proposed project, including Ivanpah Dry Lake (California) and Roach Dry Lake (Nevada), as well as drainages within California.

The DEIS describes a hydrology study predicting flood hazards for the Ivanpah Valley (pg. 4-26). Figure 4.5-1 illustrates the geologic flood hazard class associated with the proposed site. Flood hazards associated with alluvial fans are particularly hard to characterize using conventional methods. Flooding on active alluvial fans may consist of high velocity, sediment laden floodwater that may follow multiple paths simultaneously; flow paths may shift position during even low or moderate flows. Flooding can also occur as broad, largely unconfined shallow flow swaths that inundate large areas. Several components of the Project in the northern portion of the proposed site would be built in areas of the alluvial fan where the flood risk is very high. EPA is concerned about the increased flood hazard risk associated with these areas.

Recommendation:

Consider, and discuss in the FEIS, options for redesigning the Project configuration to avoid high flood hazard areas to a greater degree, particularly in the northern section of the proposed site.

Natural washes perform a diversity of hydrologic and biogeochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Many plant populations are dependent on these aquatic ecosystems and adapted to their unique conditions. The potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems: adequate capacity for flood control, energy dissipation, and sediment movement, as well as impacts to valuable habitat for desert species.

Recommendation:

Include information on the functions and locations of ephemeral washes in the project area because of the important hydrologic and biogeochemical role these washes play in direct relationship to higher-order waters downstream.

The DEIS states that the applicant proposes to maintain existing drainage patterns throughout the solar field; however, construction and operation of the proposed project would

likely change natural runoff patterns, thereby affecting erosion and deposition. The applicant proposes to construct berms to prevent lateral migration of the four major drainages in the proposed project site. The berms would require rock reinforcement (pg. 2-34) and be rip-rapped to prevent scour. Along the interior washes, vegetation would be replanted on the southern berm of each wash where it would not cause shading of the solar array (pg. 2-34). Across the remainder of the site, drainage occurs via sheet flow and in smaller washes that feed into the four large drainages. Under the proposed drainage plan, this character of drainage would be maintained. Vegetation performs several vital functions, including soil stabilization and slowing of stormwater flows. Vegetation would be mowed to a height of 12 inches, resulting in a reduction of function in slowing stormwater and stabilizing the soil (pg. 4-24). Precipitation would also flow off of the panels and may create localized gullies that may alter surface water flow. According to the DEIS, however, the installation of berms would have an insignificant effect on the flow depths and velocities in the washes, and hydrologic modeling indicates that flow would be consistent with pre-construction conditions (pg. 4-24). We note, however, that limited research has been conducted regarding effects associated with development on alluvial fans in the Mojave Desert, and assumptions that the effects would be insignificant are, as noted in the DEIS, contingent on the accuracy of surface water modeling (pg. 4-24).

The detention drainage basin system in Alternative 3 would capture stormwater from the mountains in a series of detention basins on the eastern border of the site. Stormwater would be collected and released as sheet flow onto the project site at a controlled rate. This runoff would be released at a rate consistent with runoff from a 10- or 25-year, 24-hour rain storm. In the event of a major precipitation event (exceeding the 100-year storm) the detention basins would drain into a series of peripheral drainage channels via emergency spillways. The peripheral drainage channels would discharge at the western edge of the project site. Outflows would coincide with existing ephemeral stream channels (pg. 4-29).

Recommendations:

To avoid and minimize direct and indirect impacts to desert washes (such as erosion, migration of channels, and local scour) do not place PV panels in washes.

Commit to the use of natural washes, in their present location and natural form and including adequate natural buffers, for flood control to the maximum extent practicable.

Minimize the number of road crossings over washes. Road crossings should be designed to provide adequate flow through during storm events.

Demonstrate that downstream flows will not be disrupted due to proposed changes to any natural washes nor the excavation of large amounts of sediment.

Include a functional assessment of the waters on the proposed project site and the changes to the functions of those waters as a result of the proposed project.

Include the Conceptual Drainage Report (Louis Berger, 2010) within an appendix in the FEIS.

The DEIS does not provide detailed information about fencing or the effects of fencing on drainage systems. The DEIS states that if scour were to cause PV panels to collapse, the panels and footings could be transported downstream with flood flows resulting in damage to project components on and off site (pg. 4-26). According to the DEIS, the fence would be made of frangible materials in some areas in order to mitigate possible changes in flow due to debris build-up (pg. 2-25). The fence would be constructed using materials that would break up if large amounts of debris were to build up. This would prevent large piecing of fence material being transported downstream in a flood flow (pg. 4-26).

Recommendation:

The last statement seems contradictory, because, if the fence breaks up due to large amounts of debris, materials (fencing, debris, panels, and footings) would still be transported downstream. We suggest clarifying this sentence.

In this region, storms can be sudden and severe, resulting in flash flooding. Fence design must address hydrologic criteria, as well as security performance criteria. The National Park Service recently published an article³ on the effects of the international boundary pedestrian fence on drainage systems and infrastructure. We recommend that BLM review this article to ensure that such issues are adequately addressed.

Recommendation:

Provide more detailed information about fencing and potential effects of fencing on drainage systems within the FEIS. Ensure that the fencing proposed for this project will meet appropriate hydrologic performance standards.

Groundwater Resources

EPA is concerned about the potential impacts associated with pumping groundwater in the Ivanpah Valley Basin. The project site is located in the Ivanpah Valley Northern Part (164A) and Southern Part (164B) hydrographic basins. The basins consist of alluvial-basin fill groundwater aquifers contained in unconsolidated deposits. According to the Nevada Division of Water Resources (NDWR) Hydrographic Area Summaries, perennial yield is estimated at 700 afy in the Ivanpah Valley-Northern Part and 250 afy in the Ivanpah Valley Southern-Part. More detailed information on groundwater resources, including perennial yield, annual duty, and pending annual duty, was not presented in the DEIS.

Groundwater rights are held by the Las Vegas Valley Water District (LVVWD). The DEIS states that a water service agreement with the LVVWD was scheduled for Board approval in February 2010, but the findings were not available at the time of publication. The proposed project would require 600 acre-feet of water over the four year construction period and 21 acre-feet/year (afy) for biannual panel washing and domestic potable water supply (pg. 4-21). No more than 200 acre-feet would be allowed in any single year for construction purposes. Water

³ National Park Service, August 2008, Effects of the International Boundary Pedestrian Fence in the Vicinity of Lukeville, Arizona, on Drainage Systems and Infrastructure, Organ Pipe Cactus National Monument, Arizona,

would be supplied from two wells that would be drilled on the Project site. A temporary water storage pond would be set up near the larger well. The DEIS states that an analysis of 23 wells in the immediate vicinity concluded that water consumption for the Project would not adversely affect water supply or cause drawdown with the use of the temporary storage pond.

Recommendations:

Discuss the perennial yield, active annual duty, and pending annual duty within the Ivanpah Valley Northern and Southern hydrographic basins. Evaluate the extent to which existing water rights are fully utilized. Discuss whether groundwater resources are over appropriated in these basins.

Demonstrate whether there is sufficient groundwater for the lifetime of this project, considering current and reasonably anticipated pumping levels in the basin.

Describe whether a groundwater model was used in the analysis of 23 wells. Provide more detailed information on the analysis and any corresponding assumptions within the FEIS. Include a copy of the well analysis report within an appendix in the FEIS.

Clarify whether the water service agreement with the LVVWD was approved and, if so, describe the terms of the agreement in the FEIS.

Cumulative Impacts Analysis

BLM has received over 470 renewable energy project applications,⁴ with a projected capacity of 97,000 MW of electricity. The BLM is currently processing 62 solar applications in California and 58 solar applications in Nevada. In addition, the BLM and Department of Energy (DOE) are currently preparing the Solar Programmatic EIS (Solar PEIS) to evaluate utility-scale solar energy development in six Western states (Arizona, California, Colorado, New Mexico, Nevada, and Utah). Twenty-four study areas have been identified in the six Western states, including four study areas in California and seven study areas in Nevada. The DEIS presents a brief discussion of cumulative impacts in the Ivanpah Valley, but does not provide detailed information on any of these other specific projects, nor the Solar PEIS. The DEIS lists two solar projects (Ivanpah SEGS and First Solar) in close proximity to the proposed project in California, but does not reference two solar projects near Jean, Nevada (NVN-083083 and NVN-086156).

Recommendations:

Update the list of reasonably foreseeable projects to include the two solar projects proposed near Jean, Nevada.

Include a map of reasonably foreseeable projects within a larger cumulative effects area, for example, within a 25-mile range of the proposed project.

⁴ "Secretary Salazar, Senator Reid Announce 'Fast-Track' Initiatives for Solar Energy Development on Western Lands", U.S. Department of Interior, News Release, June 29, 2009.
http://www.blm.gov/wo/st/en/info/newsroom/2009/june/NR_0629_2009.html

The DEIS presents a brief cumulative impacts analysis discussion, but does not provide detailed information nor an in-depth analyses of potential impacts for several resources, including groundwater (pg. 4-134). The DEIS states that the capacity of the local aquifer is not currently known. It does not consider what will happen to groundwater levels if pumping continues at existing rates, nor what might happen if there is an increase associated with pumping due to the influx of large-scale solar projects in the area. Due to the scarcity of water in the region, the large number of solar projects proposed nearby, and the ever-increasing demand for this commodity, EPA is concerned about the depletion of this resource in the Ivanpah Valley, and the potential impact on aquatic and riparian communities.

Recommendations:

Estimate the annual water use associated with the reasonably foreseeable large-scale solar projects proposed in the Ivanpah Valley.

Demonstrate whether there is sufficient groundwater for the lifetime of this project and other reasonably foreseeable projects;

Include a discussion of the potential effect of future climate change on the proposed project and groundwater resources.

Address what measures would be taken, and by whom, should groundwater resources in the basin become overextended due to additional growth, the influx of large-scale solar projects, drought, and/or the utilization of existing or pending water rights in the basin.

Describe mitigation and monitoring measures appropriate for groundwater resources.

Consider the indirect and cumulative impacts associated with multiple large-scale solar projects proposed in the Desert Southwest on various resources, including: habitat, endangered species, groundwater, aquatic species, and air quality.

As an indirect result of providing additional power, it can be anticipated that this project will allow for development and population growth to occur in those areas that receive the generated electricity.

Recommendation:

The DEIS should describe the reasonably foreseeable future land use and associated impacts that will result from the additional power supply. The document should provide an estimate of the amount of growth, likely location, and the biological and environmental resources at risk.

Biological Resources and Habitat

EPA is concerned about the lack of information on biological resources within the project area. Prior to publication of the DEIS, no formal surveys for the detection of wildlife (mammals, birds, or reptiles) nor plants had been conducted, except for desert tortoise surveys in August

2008 and October 2009 (pg. 4-31; pg. 4-45). Instead, most of the information on biological resources was gathered through desktop analysis and reconnaissance, rather than protocol-level field surveys. Without more detailed information on the actual density and diversity of special status species, we cannot evaluate the direct, indirect, and cumulative impacts on biological resources. The DEIS notes that formal botanical surveys are scheduled for the spring of 2010 (pg. 4-40); formal surveys for mammals are also scheduled for the spring of 2010 (pg. 4-47). EPA believes the FEIS should include a more in-depth discussion of the project's potential impacts to biological resources.

Recommendation:

Discuss the results of the most recent field surveys (botanical, wildlife, avian, and reptile) in the FEIS.

As noted in the DEIS, the proposed project area contains good to excellent quality desert tortoise habitat due to its location within the Ivanpah Valley. The proposed project area is within the Northeastern Mohave Recovery Unit, one of six designated evolutionarily significant units (pg. 3-35). Surveys for desert tortoise were conducted on October 20-31, 2008 and August 26-28, 2009 (pg. 3-27)⁵. The DEIS states that all desert tortoises found within the fenced area would be translocated in accordance with BLM and U.S. Fish and Wildlife Service (USFWS) protocols. Translocation could result in adverse impacts to both the tortoises being translocated and those existing tortoises occupying the translocation area (pg. 4-52). We understand that a Biological Assessment (BA) has been prepared and was submitted to the USFWS as required by Section 7 of the Endangered Species Act. Submission of the BA initiates consultation with the USFWS. Although this information is not presented in the DEIS, we understand that the USFWS will prepare a Biological Opinion that will include additional information on translocation of the desert tortoise, including mitigation measures to minimize take.

Recommendations:

The FEIS should discuss the outcome of consultation with the USFWS. Include a copy of the BA and Biological Opinion in the FEIS.

Describe the location of the translocation area and the density of tortoises within this area. Discuss any associated monitoring and mitigation measures.

Specify, in the FEIS, the measures that will be taken to protect important wildlife habitat areas from potential adverse effects of the proposed activities. Discuss any associated monitoring and mitigation measures.

Climate Change

The DEIS presents a brief discussion on climate change in Section 3.1.2 but does not include measures to avoid, minimize, or mitigate the effects of climate change on the proposed project. Scientific evidence supports the concern that continued increases in greenhouse gas

⁵ Note that these dates differ from the dates provided on pages 4-31 and 4-45 of the DEIS. See comment #3 under "Miscellaneous Edits" at the end of these detailed comments.

emissions resulting from human activities will contribute to climate change. Effects on weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates can be expected.

Recommendations:

Consider how climate change could affect the proposed project, specifically within sensitive areas, and assess how the impacts of the proposed project could be exacerbated by climate change.

Identify strategies to more effectively monitor for climate change impacts in the surrounding area, such as monitoring groundwater change or special status species.

Quantify and disclose the anticipated climate change *benefits* of solar energy. We suggest quantifying the greenhouse gas emissions that would be produced by other types of electric generating facilities (solar, geothermal, natural gas, coal-burning, and nuclear) generating comparable amounts of electricity, and compiling and comparing these values.

Alternatives Analysis

CEQ Regulations for implementing NEPA (40 CFR, Parts 1500-1508) state that the alternatives section of an EIS should “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly describe the reasons for their having been eliminated” (40 CFR, part 1502.14). As stated in our scoping comments, reasonable alternatives should include, but are not necessarily limited to, alternative sites, capacities, and technologies, as well as alternatives that identify environmentally sensitive areas or areas with potential use conflicts. A robust range of alternatives will include more options for avoiding significant environmental impacts.

The DEIS presents two action alternatives and a no-action alternative. Both of the two action alternatives include a 400 MW PV power plant and are similar, except for a modified approach to control erosion and small changes in solar array positioning. The applicant evaluated two solar technologies, CSP and PV. CSP technology was rejected because it would require disturbing a larger area to produce the same 400 MW of renewable energy, would affect OHV routes, and would require more water. The DEIS states that one other site on BLM land was considered in the Ivanpah Valley near Jean, Nevada, but the site was less desirable because of the distance to the interconnect with Nevada and California transmission and incompatible land use. While the DEIS includes a very brief qualitative discussion (2-3 sentences) on the reasons for eliminating this alternative, it provides no detailed information on this site, except to note that it has been designated as a desert tortoise relocation area (pg. 2-6).

The DEIS states that no comments were received during scoping suggesting that the Proposed Project should have a smaller footprint or should be reduced in size (pg. 2-6). As mentioned previously (*CWA - Analysis of Alternatives*), this does not preclude the applicant from evaluating this option now. The DEIS does not specify whether tilted trackers, horizontal trackers, or fixed tilt (non-tracking) solar arrays will be utilized (pg. 2-8). Utilizing certain types

of tracker technology should provide the applicant with increased flexibility in project design (component layout) such that impacts can be avoided to a greater degree. Double-sided PV panels can also increase the efficiency of the system, which could provide a way to shrink the project footprint without sacrificing capacity. Such panels are in use at Nellis Air Force Base. We recommend that the FEIS analyze an on-site alternative with a reduced footprint. Defining another alternative within the project area would enable decision makers to evaluate the proposed project using a wider range of variables.

Recommendations:

Include maps of the alternative sites and a more detailed discussion regarding the reasons for elimination. Quantify potential impacts to the greatest extent practicable.

Specify in the FEIS whether tilted trackers, horizontal trackers, or fixed tilt (non-tracking solar arrays) will be utilized. Specify whether standard crystalline silicon modules or thin-film technology will be utilized.

Specify whether it is feasible to utilize double-sided PV panels to increase efficiency and reduce the project footprint.

Consider, analyze, and present an on-site alternative with a reduced footprint that demonstrates greater avoidance of impacts.

See, also, our recommendations under *Ephemeral Washes, Flood Zones, and Drainage* regarding avoidance of high flood risk areas.

EPA has worked closely with the DOE's National Renewable Energy Laboratory (NREL) to develop maps⁶ showing contaminated lands and mining sites with renewable energy generation potential. These maps were developed in conjunction with the *RE-Powering America's Land: Renewable Energy on Contaminated Land and Mining Sites* program,⁷ which was launched by the EPA Office of Solid Waste and Emergency Response (OSWER) in September 2008. Under this initiative, EPA is taking a multi-pronged approach⁸ to encouraging reuse of EPA-tracked lands⁹ into clean and renewable energy production facilities. EPA has developed a Renewable Energy Interactive Mapping Tool¹⁰ that utilizes Google Earth to display these sites. We estimate that there are approximately 480,000 disturbed and contaminated sites

⁶ To develop the maps, EPA and NREL collected renewable energy resource information and merged it with EPA and state data on contaminated lands and mining sites across the country. The mapping analysis applied basic screening criteria, such as distance to electric transmission lines, distance to roads, renewable energy potential, and site acreage in order to identify EPA tracked lands that might be good candidates for solar, wind, or biomass energy production facilities.

⁷ For additional information on EPA's RE-Powering America's Land, please use the following weblink:
<http://www.epa.gov/renewableenergyland/index.htm>

⁸ See Internet site: http://www.epa.gov/renewableenergyland/docs/repower_contaminated_land_factsheet.pdf

⁹ EPA tracks abandoned mine lands, Brownfields, Resource Conservation and Recovery Act (RCRA) sites, Federal Superfund Sites, and Non-Federal Superfund Sites.

¹⁰ See Internet site: http://www.epa.gov/renewableenergyland/mapping_tool.htm. Open the Renewable Energy Interactive Map (KMZ) to launch the Renewable Energy Mapping Tool. More detailed information on the EPA tracked sites is available at: http://epa.gov/renewableenergyland/maps/ocpa_renewable_energy_data.xls.

and almost 15 million acres of potentially contaminated properties across the United States. Many of the contaminated properties are suitable for renewable energy development and have existing transmission capacity and infrastructure in place, as well as adequate zoning. EPA strongly encourages the siting of renewable energy projects on disturbed, degraded, and contaminated sites before considering large tracts of undisturbed public lands.

Recommendations:

Describe the current condition of the land selected for the proposed project, discuss whether the land is classified as disturbed, and describe to what extent the land could be used for other purposes.

Utilize the Renewable Energy Interactive Mapping Tool to explore whether there are disturbed sites located in proximity to the proposed project and discuss this in the FEIS.

Purpose and Need

EPA believes the discussion in the DEIS regarding the purpose and need for the proposed Project should be expanded to include more robust information regarding the *need* for the proposed project. As indicated in our scoping comments (July 30, 2009), the DEIS should discuss the proposed project in the context of the larger energy market that this project would serve; identify potential purchasers of the power produced; and discuss how the project would assist the state in meeting its renewable energy portfolio standards and goals. Strengthening the discussion on these topics will improve the readability of the document and may also provide further justification for the project.

As presented in the DEIS, the BLM's purpose of the proposed action is to consider a ROW grant application to construct, operate, maintain, and decommission the Silver State Solar Energy project, and the need for action is based on the submittal of the ROW application to BLM. We understand that the BLM is acting under the requirements of federal mandates that encourage the use of public lands for renewable energy development. The DEIS states that BLM has considered how the proposed action fits the region's overall energy market, including economic viability, proximity to energy consumers, and transmission line capacity and reliability factors (pg. 1-2). It also presents the proponent's objective for the proposed action (pg. 1-4), which is to locate a 400 MW utility scale solar project within the State of Nevada, where it can interconnect directly into both the Nevada and California transmission systems.

We encourage BLM to revise this section of the DEIS and utilize more robust estimates of the *need* for renewable energy within Nevada in the FEIS. As a starting point, we suggest that BLM examine Governor Jim Gibbons' Nevada Renewable Energy Transmission Access Advisory Committee (RETAAC) Phase II Report (July 2009). The RETTAC Phase II Report recognizes that there is great potential for renewable energy development within Nevada and provides estimates of this potential. The report also recognizes that there is a market for renewable energy not only in Nevada, but also in surrounding states, including California. Nevada Energy signed a 25-year 50 MW power purchase agreement (PPA) with Next Light Renewable Power, LLC (pg. 3-57). We recommend that the FEIS expand the introduction to

include a discussion of how renewable energy generated at this site might be utilized to satisfy Renewable Portfolio Standards (RPS) of Nevada and nearby states, including California.

Recommendations:

Identify potential purchasers of the power produced and discuss how the project will assist Nevada and California in meeting their RPS goals.

Update the discussion regarding the *need* for the proposed project, utilizing more accurate, robust, and up-to-date references.

Hazardous Materials/Hazardous Waste/Solid Waste

The DEIS states that the Applicant will either return solar panel products to the original manufacturer or send them to a certified recycling facility after the solar PV cells are decommissioned. Solar panel material recycling and end-of-life disposal will be done in compliance with the federal, state, and local regulations (pg. 4-93).

Recommendation:

EPA is pleased to read that the applicant will develop a recycling option to address the public's concerns about an increased risk to human health or the environment. We recommend that the FEIS and Record of Decision (ROD) commit to such a measure.

Miscellaneous Edits

1. Abstract - Text states that the Proponent is proposing to construct a concentrated solar thermal parabolic trough power plant facility approximately 2 miles southeast of Primm, NV. This should be revised to state the proponent is proposing to construct a photovoltaic power plant facility, rather than a thermal parabolic trough facility.
2. Section 1.4.1.1 – Water Resources/Hydrology – Text lists CWA Section 301 and 402 Permitting as well as the Safe Drinking Water Act, but does not identify CWA Section 404. Text should reference and describe CWA Section 404.
3. Section 3.6.2.1 – Survey Methodology – notes that surveys for desert tortoise were conducted on October 20-31, 2008 and August 26-28, 2009 (pg. 3-27). Section 4.6.5 - Residual Effects – Wildlife – notes that desert tortoise surveys were conducted during August 2008 and October 2009 (pg. 4-45). Revise dates accordingly.
4. Section 4.6.3 – Text notes that there is the potential for ten special status plant species to occur within the proposed project area (pg. 4-40). Section 3.6.3.1 & Table 3.6-1 list only nine species.
5. Section 4.6.5 – Text notes that there is the potential for 16 special status reptile species to occur within the proposed project area (pg. 4-45). Section 3.6.3.2 lists & Table 3.6-1 list only 15 species.